PATENT
Customer Number 22,852
Attorney Docket No. 7040.0020.01

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:	)	
	)	
Renato CARETTA et al.	)	
	)	
Serial No.: Not yet assigned	)	Group Art Unit: Not yet assigned
	)	
Filed: June 5, 2001	)	Examiner: Not yet assigned
	)	
For: METHOD OF MAKING TIRES FOR VEHICLE WHEELS	)	

Assistant Commissioner for Patents
Washington, DC 20231

Sir:

PRELIMINARY AMENDMENT

Prior to the examination of the above-captioned application, please amend this application as follows:

IN THE SPECIFICATION:

Please amend the specification, as follows:

Add a section heading and a paragraph immediately after the title METHOD OF MAKING TIRES FOR VEHICLE WHEELS, as follows:

--CROSS-REFERENCES TO RELATED APPLICATIONS

LAW OFFICES
FINNEGAN, HENDERSON,
FARABOW, GARRETT,
& DUNNER, L.L.P.
1300 I STREET, N. W.
WASHINGTON, DC 20005
202-408-4000

This application is a continuation of U.S. Patent Application Serial No. 09/198,241, filed November 24, 1998, in the U.S. Patent and Trademark Office, from which Applicants claim the benefit under 35 U.S.C. § 120, the contents of which are relied upon and incorporated herein by reference; additionally, Applicants claim the right of priority under 35 U.S.C. § 119(a) - (d) based on patent application No. 97830633.0, filed November 28, 1997, in the European Patent Office; further, Applicants claim the benefit under 35 U.S.C. § 119(e) based on prior-filed, copending provisional application No. 60/098,380, filed August 28, 1998, in the U.S. Patent and Trademark Office.--

Delete Page 48 in its entirety and add new Page 48, adding the following ABSTRACT OF THE DISCLOSURE. A new, separate Page 48 including the ABSTRACT OF THE DISCLOSURE is enclosed.

--ABSTRACT OF THE DISCLOSURE

At least one carcass ply is formed by depositing a strip element comprising longitudinal thread elements incorporated into a layer of elastomer material onto a toroidal support. Deposition of the strip element takes place in alternated deposition sections each comprising two radially-extending side portions and a crown portion extending at a radially external position. The side portions of each deposition section are at least partly overlapped with side portions belonging to an adjacent deposition section. Associated with the carcass ply are annular structures comprising a circumferentially inextensible annular insert axially external to an anchoring element. A belt structure, a tread band, and sidewalls are combined with the thus-formed carcass structure to define a tire to be submitted to a vulcanization step.--

LAW OFFICES
FINNEGAN, HENDERSON,
FARABOW, GARRETT,
& DUNNER, L.L.P.
1300 I STREET, N. W.
WASHINGTON, DC 20005
202-408-4000

IN THE CLAIMS:

Please cancel, without prejudice or disclaimer, claims 2-38, and add new claims 39-75, as follows:

--39. (new) A method of making a tire, comprising the steps of:

making a carcass structure;

applying a belt structure to the carcass structure at a circumferentially external position thereof;

applying a tread band to the belt structure at a circumferentially external position thereof;

applying at least one pair of sidewalls to the carcass structure at laterally opposite positions; and

vulcanizing the tire;

wherein manufacture of the carcass structure involves formation of at least one carcass ply, comprising the steps of:

preparing at least one continuous strip element comprising a plurality of longitudinal and parallel thread elements at least partly coated with at least one layer of raw elastomeric material; and

depositing the at least one continuous strip element onto a toroidal support in alternating deposition sections each extending in a substantially U-shaped conformation about a profile in transverse section of the toroidal support, to define two side portions substantially extending in planes orthogonal to a geometric axis of rotation of the toroidal support at mutually spaced apart

LAW OFFICES
FINNEGAN, HENDERSON,
FARABOW, GARRETT,
& DUNNER, L.L.P.
1300 I STREET, N. W.
WASHINGTON, DC 20005
202-408-4000

positions in an axial direction, and a crown portion extending in a radially external position between the side portions,

the crown portion of each deposition section being arranged consecutively in side-by-side relationship along a circumferential extension of the toroidal support, and the side portions of each deposition section each being partly overlapped with a side portion of at least one consecutive deposition section.

40. (new) The method of claim 39, wherein the side portions in mutual-overlapping relationship mutually converge toward the geometric axis of rotation of the toroidal support.

41. (new) The method of claim 39, wherein mutual overlapping of the side portions of the deposition sections progressively decreases starting from a maximum value at radially inner ends of the side portions until a zero value at transition regions between the side portions and crown portion.

42. (new) The method of claim 39, wherein the side portions in mutual-overlapping relationship are joined to each other at a bending end region where the strip element is folded upon itself.

43. (new) The method of claim 39, wherein each deposition section is sequentially laid down onto the toroidal support according to a circumferential distribution pitch corresponding to a width of the strip element.

LAW OFFICES
FINNEGAN, HENDERSON,
FARABOW, GARRETT,
& DUNNER, L.L.P.
1300 I STREET, N. W.
WASHINGTON, DC 20005
202-408-4000

44. (new) The method of claim 39, wherein each deposition section is sequentially laid down onto the toroidal support according to a circumferential distribution pitch corresponding to a multiple of a width of the strip element.

45. (new) The method of claim 39, wherein manufacture of the at least one carcass ply further comprises the step of pressing the strip element at the side portions of the deposition sections to define regions of greater width close to radially inner circumferential edges of the carcass structure.

46. (new) A method of making a tire, comprising the steps of:

making a carcass structure;

applying a belt structure to the carcass structure at a circumferentially external position thereof;

applying a tread band to the belt structure at a circumferentially external position thereof;

applying at least one pair of sidewalls to the carcass structure at laterally opposite positions; and

vulcanizing the tire;

wherein manufacture of the carcass structure involves formation of at least one carcass ply, comprising the steps of:

preparing at least one continuous strip element comprising a plurality of longitudinal and parallel thread elements at least partly coated with at least one layer of raw elastomeric material; and

LAW OFFICES
FINNEGAN, HENDERSON,
FARABOW, GARRETT,
& DUNNER, L.L.P.
1300 I STREET, N. W.
WASHINGTON, DC 20005
202-408-4000

depositing the at least one continuous strip element onto a toroidal support in alternating deposition sections each extending in a substantially U-shaped conformation about a profile in transverse section of the toroidal support, to define two side portions substantially extending in planes orthogonal to a geometric axis of rotation of the toroidal support at mutually spaced apart positions in an axial direction, and a crown portion extending in a radially external position between the side portions,

the crown portion of each deposition section being arranged consecutively in side-by-side relationship along a circumferential extension of the toroidal support, and the side portions of each deposition section each being partly overlapped with a side portion of at least one consecutive deposition section,

wherein manufacture of the at least one carcass ply further comprises the step of pressing the strip element at the side portions of the deposition sections to define regions of greater width close to radially inner circumferential edges of the carcass structure, and

wherein the pressing step is carried out on the strip element during the deposition step by exerting a pressing action on a section of the strip element before that section is deposited onto the toroidal support.

47. (new) The method of claim 45, wherein concurrently with the pressing step, the thread elements comprised within the strip element are mutually moved apart.

48. (new) The method of claim 39, wherein during the deposition step, at least one deposition section comprising an initial or leading end of the strip element is retained on the toroidal support by a suction action produced through the toroidal support.

LAW OFFICES
FINNEGAN, HENDERSON,
FARABOW, GARRETT,
& DUNNER, L.L.P.
1300 I STREET, N. W.
WASHINGTON, DC 20005
202-408-4000

49. (new) The method of claim 39, wherein depositing the strip element onto a toroidal support comprises the steps of:

guiding the strip element on a distributor element movable about the profile in transverse section of the toroidal support;

translating the distributor element substantially radially away from the geometric axis of rotation of the toroidal support to form a first side portion of the deposition section of the strip element;

rotating the toroidal support relative to the distributor element according to an angular pitch corresponding to one-half of a distribution pitch of the deposition sections, concurrently with formation of the first side portion;

translating the distributor element substantially in a direction parallel to the geometric axis of rotation of the toroidal support to form the crown portion of the deposition section of the strip element;

translating the distributor element substantially radially close to the geometric axis of rotation of the toroidal support to form a second side portion of the deposition section of the strip element; and

rotating the toroidal support relative to the distributor element according to the angular pitch, concurrently with formation of the second side portion.

50. (new) The method of claim 49, wherein during formation of the first side portion of each deposition section, a step of retaining the strip element at a bending region defined between

LAW OFFICES
FINNEGAN, HENDERSON,
FARABOW, GARRETT,
& DUNNER, L.L.P.
1300 I STREET, N. W.
WASHINGTON, DC 20005
202-408-4000

the first side portion and a second side portion of a previously formed deposition section is carried out.

51. (new) The method of claim 50, wherein retention of the strip element is carried out by arranging a retaining element alongside the second side portion after translation of the distributor element radially close to the geometric axis of rotation of the toroidal support, so that the strip element is turned back about the retaining element, forming the bending region as a result of translation of the distributor element radially away from the geometric axis of rotation of the toroidal support.

52. (new) The method of claim 51, wherein the retaining element is axially disengaged from the bending region after beginning formation of the crown portion of the deposition section being made.

53. (new) The method of claim 39, further comprising the step of pressing the side portions of the deposition sections against side walls of the toroidal support.

54. (new) The method of claim 53, wherein the pressing step is carried out repeatedly on first and second side portions belonging to two contiguous deposition sections.

55. (new) The method of claim 39, further comprising the step of applying at least one inextensible annular structure to an area close to each of the inner circumferential edges of the carcass ply obtained from the deposition step.

LAW OFFICES
FINNEGAN, HENDERSON,
FARABOW, GARRETT,
& DUNNER, L.L.P.
1300 I STREET, N. W.
WASHINGTON, DC 20005
202-408-4000

56. (new) The method of claim 55, further comprising the step of turning back end flaps of the side portions about respective inextensible annular structures.

57. (new) The method of claim 39, further comprising the step of forming a second carcass ply in a similar manner to formation of the first carcass ply.

58. (new) A method of making a tire, comprising the steps of:

making a carcass structure including at least one carcass ply;

forming at least two inextensible annular structures;

applying at least one inextensible annular structure to an area close to each inner circumferential edge of the carcass ply;

applying a belt structure to the carcass structure at a circumferentially external position thereof;

applying a tread band to the belt structure at a circumferentially external position thereof;

applying at least one pair of sidewalls to the carcass structure at laterally opposite positions; and

vulcanizing the tire;

wherein forming each inextensible annular structure comprises the steps of:

depositing at least one thread element in concentric coils into a molding cavity to form a circumferentially inextensible annular insert to be positioned substantially parallel to adjacent surfaces of the carcass ply;

LAW OFFICES
FINNEGAN, HENDERSON,
FARABOW, GARRETT,
& DUNNER, L.L.P.
1300 I STREET, N. W.
WASHINGTON, DC 20005
202-408-4000

positioning an annular anchoring element in the molding cavity at a position axially close to the circumferentially inextensible annular insert; and

injecting raw elastomeric material into the molding cavity to make a filling body intimately joined to the annular anchoring element and the circumferentially inextensible annular insert.

59. (new) The method of claim 58, wherein the step of depositing at least one thread element is preceded by a rubberizing step in which the thread element is coated with at least one layer of raw elastomeric material.

60. (new) The method of claim 58, further comprising the step of magnetically retaining the circumferentially inextensible annular insert at a predetermined position within the molding cavity.

61. (new) The method of claim 58, wherein the raw elastomeric material is injected through at least one circumferential-admission hollow space opening into the molding cavity.

62. (new) A method of making a tire, comprising the steps of:

making a carcass structure;

applying a belt structure to the carcass structure at a circumferentially external position thereof;

applying a tread band to the belt structure at a circumferentially external position thereof;

LAW OFFICES
FINNEGAN, HENDERSON,
FARABOW, GARRETT,
& DUNNER, L.L.P.
1300 I STREET, N. W.
WASHINGTON, DC 20005
202-408-4000

applying at least one pair of sidewalls to the carcass structure at laterally opposite positions; and

vulcanizing the tire;

wherein application of the belt structure comprises the steps of:

forming at least one continuous belt ribbon comprising at least one layer of raw elastomeric material at least partly incorporating a plurality of longitudinally parallel cords;

cutting the continuous belt ribbon according to a predetermined inclination relative to its longitudinal extension to form belt lengths having a predetermined size in width, measured perpendicular to a cutting direction; and

laying down the belt lengths consecutively in circumferential alignment onto the carcass structure to form at least one first continuous belt strip having cords arranged transversely according to an inclination corresponding to the cutting inclination of the lengths.

63. (new) The method of claim 62, wherein before the cutting step, the continuous belt ribbon is submitted to a calendering step to give the lengths a circumferential size corresponding to a submultiple of a circumferential extension of the belt strip.

64. (new) The method of claim 62, wherein the step of applying the belt structure comprises forming at least one second belt strip by winding at least one continuous thread element in coils arranged axially in side-by-side relationship and extending circumferentially about the first belt strip.

LAW OFFICES
FINNEGAN, HENDERSON,
FARABOW, GARRETT,
& DUNNER, L.L.P.
1300 I STREET, N. W.
WASHINGTON, DC 20005
202-408-4000

65. (new) The method of claim 64, wherein the winding coils formed by the at least one continuous thread element are arranged mutually in side-by-side relationship according to a variable axial-distribution pitch.

66. (new) The method of claim 65, wherein the axial-distribution pitch is greater close to an equatorial median plane of the tire than at opposite side edges of the belt structure.

67. (new) The method of claim 39, wherein the step of applying the tread band comprises circumferentially winding at least one continuous sheet of raw elastomeric material about the belt structure in a plurality of radially superposed coils.

68. (new) The method of claim 67, wherein the continuous sheet of elastomeric material is produced during its application to the belt structure.

69. (new) The method of claim 67, further comprising the step of progressively reducing a width of the elastomeric material sheet concurrently with winding each coil about the belt structure.

70. (new) The method of claim 39, wherein each of the sidewalls is made by injection of elastomeric material into a mold.

71. (new) The method of claim 70, wherein making the sidewalls comprises the steps of:

LAW OFFICES
FINNEGAN, HENDERSON,
FARABOW, GARRETT,
& DUNNER, L.L.P.
1300 I STREET, N. W.
WASHINGTON, DC 20005
202-408-4000

injecting a first elastomeric material into a first cavity defined in the mold to form a radially outer portion of the sidewall;

defining a second cavity in the mold, partly delimited by the radially outer portion of the sidewall; and

injecting a second elastomeric material into the second cavity of the mold to define a radially inner portion of the sidewall.

72. (new) The method of claim 39, wherein formation of the carcass ply is preceded by the step of coating the toroidal support with at least one air-proof layer or liner of elastomeric material.

73. (new) The method of claim 72, wherein the coating step comprises winding at least one ribbon band of an air-proof elastomeric material in coils arranged in side-by-side relationship along the profile in transverse section of the toroidal support.

74. (new) The method of claim 39, wherein before the vulcanization step, the following steps are carried out:

disengaging the tire from the toroidal support; and

inserting an air tube into the carcass structure.

75. (new) The method of claim 39, wherein during the vulcanization step, a step of stretching the at least one carcass ply and belt structure is carried out for achieving an expansion of the tire of a linear amount between 2% and 5%.--

LAW OFFICES
FINNEGAN, HENDERSON,
FARABOW, GARRETT,
& DUNNER, L.L.P.
1300 I STREET, N. W.
WASHINGTON, DC 20005
202-408-4000

REMARKS

Applicants submit this Preliminary Amendment together with a continuation application under 37 C.F.R. § 1.53(b). Claims 1-38 are pending in this application.

In this Amendment, Applicants add a section heading and claims to the right of priority and benefit. Additionally, Applicants delete the Abstract of the Disclosure in its entirety and replace it with a new Abstract of the Disclosure. Further, Applicants cancel, without prejudice or disclaimer, claims 2-38, and add new claims 39-75, which include the same subject matter as the original claims, to improve clarity. The originally-filed specification, claims, abstract, and drawings fully support the amendments to the specification and the addition of new claims 39-75. No new matter was introduced.

If there is any fee due in connection with the filing of this Preliminary Amendment, please charge the fee to our Deposit Account No. 06-0916.

Respectfully submitted,

FINNEGAN, HENDERSON, FARABOW,
GARRETT & DUNNER, L.L.P.

Dated: June 5, 2001

By: _____
Lawrence F. Galvin
Reg. No. 44,694

LAW OFFICES
FINNEGAN, HENDERSON,
FARABOW, GARRETT,
& DUNNER, L.L.P.
1300 I STREET, N. W.
WASHINGTON, DC 20005
202-408-4000

ABSTRACT OF THE DISCLOSURE

At least one carcass ply is formed by depositing a strip element comprising longitudinal thread elements incorporated into a layer of elastomer material onto a toroidal support. Deposition of the strip element takes place in alternated deposition sections each comprising two radially-extending side portions and a crown portion extending at a radially external position. The side portions of each deposition section are at least partly overlapped with side portions belonging to an adjacent deposition section. Associated with the carcass ply are annular structures comprising a circumferentially inextensible annular insert axially external to an anchoring element. A belt structure, a tread band, and sidewalls are combined with the thus-formed carcass structure to define a tire to be submitted to a vulcanization step.